

Authors

Frank P. Palermo*

Research Division, San Jose, California

Dr. Palermo's current interest is in problems of workload characterization for computer systems. Since joining IBM in 1960, he has worked on network problems, coding theory and systems for remote scientific computing; he has recently worked on search algorithms for a relational data base. Before joining IBM, Dr. Palermo taught mathematics at the University of Michigan, Princeton University and Brown University. His education includes a B.S. in mathematics from the Case Institute of Technology in 1949, and an M.S. and a Ph.D. in mathematics from Brown University, which he received in 1952 and 1955, respectively. Dr. Palermo is a member of the American Mathematical Society, the Mathematical Association of America and Sigma Xi.

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Harold A. Anderson, Jr.

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Dr. Anderson works in system measurement and evaluation at the Thomas J. Watson Research Center. He has been with IBM since 1965, specializing in computer-aided design of integrated circuits and computer performance evaluation. His education includes a B.S. in mathematics, University of Rhode Island, 1961; an M.S. in physics, Trinity College, 1965; and a Ph.D. in systems and information science, Syracuse University, 1972, where he was an IBM Resident Study Fellow. Prior to joining IBM, Dr. Anderson was a system analyst at the United Aircraft Research Laboratory, 1961 to 1964, and at Booz, Allen Applied Research, 1964 to 1965. He is a member of the Association for Computing Machinery.

Lalit R. Bahl

Research Division, Yorktown Heights, New York

Dr. Bahl is a member of the speech processing and recognition group at the Thomas J. Watson Research Center. He joined IBM in 1968 at the Research Center and has worked primarily in the application of information and coding theory to various problems. He is also an Adjunct Associate Professor in the Department of Electrical Engineering and Computer Science at Columbia University. He received a Ph.D. in electrical engineering from the University of Illinois in 1968. Dr. Bahl is a member of the Institute of Electrical and Electronics Engineers.

Thomas H. DiStefano

Research Division, Yorktown Heights, New York

Dr. DiStefano is a physicist in the Physical Sciences Department of the Thomas J. Watson Research Center where he is currently involved in the area of insulators and metal-insulator interfaces. He joined IBM in 1970 at the Research Center. Dr. DiStefano received a B.S.E.E. degree with highest honors from Lehigh University in 1964 and an M.S.E.E. and Ph.D. in applied physics from Stanford University in 1965 and 1970, respectively. From 1964 to 1966 he held an NSF graduate fellowship and became a member of the research staff at SLAC, Stanford University from 1969 to 1970. During this same period he was a consul-

tant to Synvar, Inc., Palo Alto, California. Dr. DiStefano is a member of the American Physical Society and the American Association for the Advancement of Science.

Elliot L. Gruenberg

West New York, New Jersey

Mr. Gruenberg recently retired as manager of the technical staff at the Morris Plains, New Jersey office of the Federal Systems Division, where he was concerned with system analysis of requirements for ABM real-time systems. He had been with IBM since 1958, working on and managing projects in the development of digital communications and data compression, system applications for phased-array radars and lasers and new techniques for microwave communications. During his professional career he worked as a quality control engineer for Technical Devices Corporation, Roseland, New Jersey; as a senior engineer designing electronic equipment for FAA applications at the J. H. Bunnell Company, Brooklyn, New York; and as a director of microwave radar and communications projects at the Maxon Electronics Company, Great River, New York. He received a B.E.E. degree from the City University of New York in 1938 and has taken post graduate courses in microwaves and communications at the Polytechnic Institute of Brooklyn. He was editor-in-chief of the *Handbook of Telemetry and Remote Control* published by McGraw-Hill Book Company in 1967. He is a senior member of the Institute of Electrical and Electronics Engineers and an associate fellow of the American Institute of Aeronautics and Astronautics.

Bernard G. Huth

Research Division, San Jose, California

Dr. Huth is manager of the input/output technology effort in the Exploratory Technology Department. He transferred to the Research Laboratory in 1971 and at that time worked on the beam addressable file project. He initially became associated with IBM in 1967 at the Federal Systems Division in Gaithersburg, Maryland, where he was a member of the quantum electronics department. While there he worked on laser and non-linear optics problems including dye lasers, molecular lasers and stimulated Raman effect. His degrees are all in electrical engineering—a B.S. from the Case Institute of Technology, 1963, and the M.S. and Ph.D. from Stanford University in 1964 and 1967, respectively. Dr. Huth is a member of the Institute of Electrical and Electronics Engineers, the American Physical Society, Sigma Xi and Tau Beta Pi.

Hisashi Kobayashi

Research Division, Yorktown Heights, New York

Dr. Kobayashi is manager of a system measurement and modeling group in the Computer Sciences Department at the Thomas J. Watson Research Center. He joined IBM Research in 1967 as a member of the applied research department where he was involved in seismic signal processing, data communication theory, digital magnetic recording theory and image data compaction. In 1971 he moved to the Computer Sciences Department and since then, has been concerned with the development of general theory and methodologies for computer system performance evaluation. From 1963 to 1965 he worked at the Toshiba Electric Company, Tokyo, where he was engaged in the research and development of advanced radar systems. From 1969 to 1970 he was a Visiting Assistant Professor at the Department of System Science, University of California at Los Angeles, where he taught courses in probability and statistics, information theory and signal detection theory. He holds B.S. and

M.S. degrees in electrical engineering, obtained in 1961 and 1963, respectively, from the University of Tokyo and M.A. and Ph.D. degrees in electrical engineering both received in 1967 from Princeton University. He is a member of Eta Kappa Nu, the Institute of Electrical and Electronics Engineers, the Association for Computing Machinery, the Institute of Electronics and Communication Engineers of Japan, and the Information Processing Society of Japan. He was awarded the RCA David Sarnoff Scholarship in 1960 and the Orson Desaix Munn Fellowship in 1965.

Peter M. Kogge

Federal Systems Division, Owego, New York

Dr. Kogge is a staff engineer in the Systems Architecture Department at the Electronics Systems Center where his present responsibilities include the definition of advanced computer architectures and organizations. Since joining IBM in 1968 he has worked on applications for a large multiprocessor computer and from 1970 to 1972 held an IBM Resident Fellowship for study at Stanford University. His education includes a B.S. in electrical engineering from the University of Notre Dame, 1968; an M.S. in systems and information sciences from Syracuse University, 1970; and a Ph.D. in electrical engineering from Stanford University, 1973. Dr. Kogge is a member of the Association for Computing Machinery and the Institute of Electrical and Electronics Engineers.

Herbert P. Raabe

Federal Systems Division, Manassas, Virginia

Dr. Raabe is a senior engineer in an advanced sonar development group of the Electronic Systems Center and is responsible for the performance analysis of sonar sensors and arrays. He joined IBM in 1966 and became involved in the planning and management of an electron counter-measures project and the design of a self-adapting phased array. From 1939 to 1945 Dr. Raabe was head of the Laboratory for Communications Techniques of the Technical University of Berlin, Germany. He also conducted research at the Heinrich-Hertz Institute for Oscillation Research and in 1945 developed a new microfilm viewing and storage system for the Society for Microfilm, Berlin. From 1946 to 1947 Dr. Raabe was associated with the Bureau of Communications Techniques, Berlin, where he developed a subsonic telemetering and control system and from 1947 to 1956 he was a technical consultant on airborne radar for the Aerial Reconnaissance Laboratory at the Wright Patterson Air Force Base, Ohio. From 1956 to 1966 he was involved in radar systems analysis, electronic counter-measures effectiveness studies, propagation via artificial scatterers, passive communications satellites, and spacecraft attitude sensing and control in the Applied Science Division of Litton Industries. Dr. Raabe graduated from the Technical University of Berlin with a Dipl.-Ing. degree in 1936 and a Dr.-Ing. degree, summa cum laude, in 1939. He is a senior member of the Institute of Electrical and Electronics Engineers and a member of the American Institute of Aeronautics and Astronautics and the American Defense Preparedness Association.

Martin Reiser

Research Division, San Jose, California

Dr. Reiser joined IBM in 1968 at the Zurich Research Laboratory where he did work on semiconductor device modeling. He is now on a leave of absence and is presently assigned to the Research Laboratory where he is working on analytical and empirical models for system performance evaluation. Before coming to San Jose he spent 16 months at the Thomas J.

Watson Research Center, Yorktown Heights, New York. His education includes an M.S. and a Ph.D. in electrical engineering, which he received from the Swiss Federal Institute of Technology (ETH), Zurich, in 1967 and 1971, respectively. Dr. Reiser is a member of the Association for Computing Machinery.

Robert G. Sargent

Syracuse University, Syracuse, New York

Dr. Sargent is an Associate Professor of Industrial Engineering and Operations Research and a member of the Systems and Information Science Faculty at Syracuse University. His current interests are discrete simulation and modelling and performance evaluation of computer systems. He previously was an electronics engineer at the Hughes Aircraft Company from 1959 to 1961, on the staff of the University of Michigan from 1963 to 1966, and a faculty member at Syracuse University since 1966. His education includes a B.S.E. in electrical engineering in 1959, an M.S. in 1963, and a Ph.D. in industrial engineering in 1966, all from the University of Michigan. Dr. Sargent is a member of the Association of Computing Machinery, the Institute of Management Sciences, the Institute of Electrical and Electronics Engineers, the Society for Computer Simulation, the American Institute of Industrial Engineers, Sigma Xi, and Alpha Pi Mu. He is a full member of the Operations Research Society of America and a Fellow of the American Association for the Advancement of Science.

Constantine T. Tsitsera

Federal Systems Division, Owego, New York

Dr. Tsitsera is a senior engineer in an advanced programs group at the Electronics Systems Center. He joined IBM at Yorktown Heights, New York in 1966 where he worked in the development of microwave systems. From 1968 to 1973 he was in the Federal Systems Division, Gaithersburg, Maryland, working in satellite communications and the development of radio frequency interferometers for attitude sensing and position location of emitters. From 1964 to 1965 he was a research assistant at Columbia University while doing his doctoral research in the area of system identification techniques using random inputs. Previous to this he worked for the consulting engineering firm of Guy B. Panero Engineers, New York City, and from 1953 to 1957 he worked on power generation and control systems while at the Newport News Shipbuilding and Dry Dock Company, Virginia. His education includes an S.B. in E.E. from the Massachusetts Institute of Technology, 1950, an M.S. and Dr. Eng. Sc., both in electrical engineering, from Columbia University in 1961 and 1965, respectively. He is a member of the Institute of Electrical and Electronics Engineers.

Joseph M. Viggiano

Research Division, Yorktown Heights, New York

Mr. Viggiano is an associate engineer in the Physical Sciences Department at the Thomas J. Watson Research Center. His present work includes studies in Josephson microbridge devices as well as photoemission studies related to MOS devices. Since joining IBM in 1963 he has also been involved in the area of magnetic films. He previously was employed for two years by Del Electronics Corporation, Mt. Vernon, New York. Mr. Viggiano is a graduate of RCA Institutes, New York City, and is presently attending the University of Bridgeport, Connecticut. He is a member of the Institute of Electrical and Electronics Engineers.

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